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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,420	11/01/2005	Jacques Roziere	0512-1273	7925
466 7590 01/24/2007 YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			EXAMINER MATTHEWS, ABRAHAM M	
			ART UNIT 1755	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE			MAIL DATE	
3 MONTHS			01/24/2007	
			DELIVERY MODE PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/531,420	ROZIERE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Abraham M. Matthews	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 01 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>04/15/2005</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

(1)

### ***Claim Objections***

Claims 9,15,23,30,33,39 and 47 are objected to for use of "preferable" ranges or limitations. The claims are definite because one of ordinary skill in the art recognizes that the "preferable" ranges or limitations are optional or exemplary, and not express recitations of the claims. However, such "preferable" ranges or limitations have not traditionally been used in U.S. patent claims. Therefore, the examiner requests that the "preferable" ranges/limitations be deleted from the claims, and inserted into new dependent claims.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-19 provide for the use of a porous silicon-based catalytic system, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

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Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 refers to "catalytic system according to claim 1". Claim 1 is directed to a "use" not a catalytic system.

Feature "a." in the recitation is already recited in claim 1.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-19 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,795,559 to Pinnavaia et al.

Pinnavaia et al. disclose a mesoporous silicon-based catalytic system having pore diameter comprised between about 2 and 10 nm, and prepared from a neutral

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hydrolysable inorganic silica precursor and a non-ionic surfactant, wherein the concentration of the non-ionic surfactant in the catalyst preparation medium is in the range of 1-25% wt % (Pinnavaia et al., column 7, lines 42-61, column 8, lines 38-57, column 15, lines 25-27, Examples 1-6, Examples 7-11, and Tables 1 and 2). Pinnavaia et al also disclose that said catalytic system can be combined with other components, for example, zeolites (e.g., aluminosilicates), clays, and inorganic oxides or mixtures thereof (Pinnavaia et al., column 13, lines 50-55, and column 3, lines 33-38). As to the acidity level of between about 150  $\mu\text{mol}$  and about 650  $\mu\text{mol/g}$  recited in the instant claim, acidity level of said catalytic system is assumed to be inherent because said system is made with the same hydrolysable silica precursor and the same surfactant in the same amount (MPEP 2112).

(2)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-19 and 25-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,795,559 to Pinnavaia et al. in view of US Patent No.6,204,424 B1 to Yadav et al.

Regarding Applicants' claims 1,2,8,11,19. Pinnavaia et al., as applied to claims 20-24, disclose use of a mesoporous silicon-based catalytic system having a pore diameter of between about 2 and 10 nm, and prepared from a hydrolyzable silicon-based precursor and a non-ionic surfactant, wherein the concentration of the non-ionic surfactant in the catalytic system is in the range from 1-25 wt% (Pinnavaia et al., column 7, lines 42-48, and column 8, lines 38-57). Pinnavaia et al., however, do not specifically disclose the use of said mesoporous silicon-based catalytic system for the conversion of a light olefin feedstock into oligomer paraffins having from about 10 to about 20 carbon atoms.

Nevertheless, Yadav et al., also drawn to mesoporous silicon-based catalysts, disclose the use of said mesoporous silicon-based catalytic system for oligomerization of alpha-olefins to obtain an oligomer with two monomer units or molecules as a major product (Yadav et al., column 2, lines 37-44, and lines 55-58, column 4, line 60 to column 5, line 11, column 7, lines 33-36, Examples 3 to 12, and Tables 2-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added into the mesoporous silicon-based catalytic system of Pinnavaia et al. the element of use of said catalytic system for the conversion of a light olefin feedstock into oligomer paraffins, as taught by Yadav et al., motivated by the fact that Yadav et al. disclose that by so doing the problem of separation by distillation from higher oligomers can be eliminated (Yadav et al., column 2, lines 58-60)

Regarding Applicants' claims 25,26,32, and 43-48, Pinnavaia et al., as applied to claim 20 above, disclose a mesoporous silicon-based catalytic system having a pore diameter of between about 2 and 10 nm. Pinnavaia et al also disclose a process of preparation of said catalytic system from a hydrolyzable silicon-based precursor and a non-ionic surfactant , wherein the concentration of the non-ionic surfactant in the catalytic system is in the range from 1-25 wt% (Pinnavaia et al., column 7, lines 42-48, and column 8, lines 38-57). Pinnavaia et al., however, do not specifically disclose a process for the conversion of a light olefin feedstock into oligomer, wherein said olefin feedstock is contacted with said mesoporous silicon-based catalytic system.

Nevertheless, Yadav et al., as applied to claim 1 above, disclose a process wherein said mesoporous silicon-based catalytic system is used for oligomerization of alpha-olefins to obtain an oligomer with two monomer units or molecules as a major product (Yadav et al., column 2, lines 37-44, and lines 55-58, column 4, line 60 to column 5, line 11). column 7, lines 33-36, Examples 3 to 12, and Tables 2-4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added into the mesoporous silicon-based catalytic system of Pinnavaia et al. the process element for the conversion of a light olefin feedstock into oligomer paraffins, as taught by Yadav et al., motivated by the fact that Yadav et al. disclose that by adding said process element the problem of separation by distillation from higher oligomers can be eliminated (Yadav et al., column 2, lines 58-60)

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure..

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abraham M. Matthews whose telephone number is (571) 272-2495. The examiner can normally be reached on M-F 8:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMM



**DAVID SAMPLE**  
**PRIMARY EXAMINER**